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tunity for applying the exact methods of modern ecology to the problems of Silvics, Forest Pathology, Dry-land Agriculture, Plant Breeding and Experimental Evolution is unsurpassed. Opportunity will also be offered for the taxonomic study of the varied flora.

While the plan contemplates graduate work primarily, advanced students in botany or related subjects, such as forestry and agronomy, will be accepted, provided they have had sufficient training to enable them to work on individual problems under adequate supervision. It is hoped that the opportunity will be especially welcome to foresters, pathologists, agronomers and teachers of botany who have not yet become acquainted with the methods and outlook of exact ecology, and its many applications to practical plant science. The summer's work will be accepted as the full equivalent of a semester's work for the master's or the doctor's degree at the University of Minnesota, and the University of Nebraska. It is expected that other universities will permit similar arrangements.

FREDERICK E. CLEMENTS

THE UNIVERSITY OF MINNESOTA

SCIENTIFIC NOTES AND NEWS

DR. FELIX KLEIN, professor of mathematics at Göttingen, is about to retire from active service.

MRS. A. R. WALLACE writes to an American correspondent: "Dr. Wallace is very well and busy, writing as hard as ever; he has just passed 90, and feels like 50."

DR. JAMES M. TAYLOR will retire from the presidency of Vassar College at the close of the present year.

DR. ALEXIS CARREL, of the Rockefeller Institute for Medical Research, has been appointed a knight of the Legion of Honor by the French government.

DR. F. W. PUTNAM, professor emeritus of anthropology at Harvard University, has been elected non-resident vice-president of the Washington Academy of Sciences.

PROFESSOR S. W. WILLISTON, of the University of Chicago, will attend the ninth Inter-

national Congress of Zoology as the delegate at large of the American Zoological Society.

THE Lalande Prize, of the Paris Academy, has been awarded to Professors H. Kobold and W. Wirtz for their work on the determination of the motions of nebulae.

THE Bessemer gold medal of the Iron and Steel Institute will be awarded to Mr. Adolphe Greiner, general director of the Société Cockerill, Seraing, at the annual meeting to be held in London on May 1 and 2.

At the last meeting of the Royal Australasian Ornithologists' Union of Melbourne, Australia, Dr. R. W. Shufeldt, of Washington, D. C., was elected an honorary member.

Two bronze horses, made by George Ford Morris, the New York animal artist, illustrating the points of an ideal draft horse, and the deficiencies of an inferior horse, have been presented to Dr. A. S. Alexander, of the University of Wisconsin, in recognition of his work in developing the horse breeding industry, both of Wisconsin and the country at large.

DR. EDWARD A. BURT, professor of natural history (botany) in Middlebury College, Middlebury, Vt., has been appointed librarian and mycologist of the Missouri Botanical Garden, St. Louis, Mo. He will leave Middlebury at the close of the present college year and begin his work at the Missouri Botanical Garden in September.

At the recent annual meeting of the board of managers of the Wistar Institute of Anatomy and Biology, Dr. Helen Dean King was elected assistant professor of embryology. Dr. King will continue the embryological work of the institute which was begun two years ago by Professor G. Carl Huber, who has returned to the University of Michigan.

DR. ROBERT H. LOWIE, of the department of anthropology of the American Museum of Natural History, has been promoted to the rank of associate curator.

MR. WILLIAM ROBERT OGILVIE GRANT has been promoted to be assistant keeper of the department of zoology at the Natural History

Museum, South Kensington, in succession to Mr. Edgar Smith, who will retire, by reason of age, on March 31.

DR. WILLIAM MCPHERSON, professor of chemistry and dean of the Graduate School at the Ohio State University, has been granted a leave of absence for the second semester. He will spend the semester in Germany.

DR. BRYANT WALKER, of Detroit, Michigan, will bear the expense of a zoological expedition to Colombia, South America, in the summer of 1913. The field party will consist of the head curator of the museum, Dr. A. G. Ruthven, Professor A. S. Pearse, University of Wisconsin, honorary curator of crustacea, and Mr. Frederick Gaige, of the department of zoology, University of Michigan. The work will be carried on in the Santa Marta Mountains, and will consist principally of detailed studies of the local distribution of the crustaceans, molluscs, ants, amphibians and reptiles, although an attempt will be made to get specimens of other groups needed in the museum.

PROFESSOR HARRIS HAWTHORNE WILDER, of the department of zoology at Smith College, and Mrs. Wilder, instructor in zoology, have been given leave of absence for the second half year, and will proceed to Naples.

PROFESSOR JAMES HAYDEN TUFTS, head of the department of philosophy in the University of Chicago, will be the convocation orator at the eighty-sixth convocation of that institution on March 18, the subject of his address being "The University and the Advance of Justice."

PROFESSOR LUDWIG ASCHOFF will deliver the Cartwright lectures of the Association of the Alumni of the College of Physicians and Surgeons, Columbia University. There will be two lectures, the subjects being "Thrombosis" and "Contracted Kidney," and they will be given at the New York Academy of Medicine on March 12 and March 15.

PROFESSOR LUDWIG SINZHEIMER, of the University of Munich, has arrived in Madison, where he will give a course of lectures in the

University of Wisconsin during the second semester. His subjects are "Industrial Labor Problems" and "Methods of Social Reform."

MR. JOHN M. GOODELL, Assoc. Am. Soc. C. E., consulting engineer, *Engineering Record*, New York City, on February 20 delivered a lecture on "Essentials of Technical Writing," before the graduate students in highway engineering at Columbia University.

By invitation of the scientific faculty, Professor George Grant MacCurdy, of Yale University, gave a public lecture at Dartmouth College on the evening of February 10, his subject being the "Antiquity of Man."

HARLAN I. SMITH, of the Geological Survey of Canada, delivered an illustrated public lecture on January 28 in the Normal School, Ottawa, on "Modern Museum Work for the Scientist, the Teacher and the Public" under the auspices of the Ottawa Field Naturalists' Club.

DR. ROLLIN A. HARRIS, of the U. S. Coast and Geodetic Survey, lectured before the Sigma Xi Society of Cornell University on February 10. His subject was "The Leading Characteristics of the Tides."

WITH the support of the Christiania and Leipzig Academies, the firm of B. G. Teubner contemplates the publication by subscription of the collected works of Sophus Lie, edited by Friedrich Engel.

THE *American Museum Journal* states that by the death of the artist, Louis Akin, at Flagstaff, Arizona, on January 2, the museum's plans for mural decorations for the Southwest Indian hall have received a check. Mr. Akin had been commissioned to prepare tentative sketches for sixteen panels and had made a number of preliminary figure studies with that end in view. He expected to have finished the sketches during the present year. It is hoped that it may be possible to exhibit Mr. Akin's studies during the spring months when there is proposed a special exhibit of material and paintings illustrating the life of the Indians of the Pueblo region. Mr. Akin is best known to the world by his paintings of

Hopi Indians. His work is a faithful portrayal of the tribe, with which he lived during the years of his study and of which he was made a member.

WE learn from *Nature* that the friends of the late Mr. H. O. Jones, F.R.S., who with his wife met his death last summer in the Alps, are of opinion that some permanent memorial to him should be established in the University of Cambridge. There is at present no teaching post especially associated with physical chemistry in the university, and as the laboratory now affords opportunity for study and research in this modern branch of chemistry, the committee appointed for the purpose of the memorial recommends that the endowment of such a post in connection with physical chemistry would form an appropriate and a lasting memorial to Mr. Jones, and one calculated to further a cause in which he was peculiarly interested. Subscriptions to the extent of more than £2,750 have already been received.

DR. SAMUEL ALLEN LATTIMORE, professor of chemistry at the University of Rochester for more than forty years until his retirement as professor emeritus in 1908, died on February 17, aged eighty-four years. Professor Lattimore was a vice-president of the American Association for the Advancement of Science in 1880.

DR. J. E. MANCHESTER, instructor in mathematics at the University of Minnesota, and previously president of Vincennes University, died on January 24, aged fifty-seven years.

G. HAROLD DREW, B.A., of Christ's College, Cambridge, and research associate of the Department of Marine Biology of the Carnegie Institution of Washington, died on January 29.

THERE will be a civil service examination on April 9, for the position of miscellaneous computer in the Naval Observatory.

THERE will be New York state civil service examinations on March 22 for the position of chief medical officer, port of New York, at a salary of \$2,500, and locomotive boiler inspector in the second district, at a salary of \$3,000.

A REPORT has been received at the American Museum of Natural History from the South Georgia Islands expedition under Mr. Robert C. Murphy, which reached the Bay of Islands, November 27, and was waiting for the sea elephant season to open in order to obtain the desired specimens for a museum group of this Antarctic species. Mr. Murphy's statement that there were already on the ground twenty-one steamers representing seven commercial companies, mainly Norwegian, is discouraging for the future of the southern sea elephant race even with the close season set upon the species by the English. The South Georgia Islands expedition, made possible through the liberality of Mr. Arthur Curtiss James, hopes to obtain young penguins needed for completion of a penguin group under construction at the American Museum, in addition to sea elephants and a general collection of birds.

AT the stated meeting of the College of Physicians, Philadelphia, held on February 5, an Assyrian medical tablet, dating from the seventh century B.C., the gift of Drs. S. Weir Mitchell and Richard H. Harte, was presented by Dr. F. P. Henry.

THE mental hygiene exhibit prepared for the International Congress of Hygiene and Demography will be held in Philadelphia, March 13-22. The exhibit consists of charts, statistics, photographs and models showing past and present methods of care for the insane.

THE Stanford University Medical Department announces the thirty-first course of popular medical lectures to be given as follows:

February 7—"Eugenics," President David Starr Jordan.

February 21—"The State and the Physician," Professor J. G. Fitzgerald, University of California.

March 7—"Grafts and Transplantations of Human Tissue," Dr. Leo Eloesser.

March 21—"The Work of the Medical Department of the U. S. Army on the Firing Line"

(illustrated), Captain James L. Bevans, Medical Corps, U. S. Army.

April 4—"Some Skin Diseases We Need not Have" (illustrated), Dr. H. E. Alderson.

April 18—"The Work and the Aims of Our Health Department" (illustrated), Dr. R. G. Brodrick, Health Officer of San Francisco.

THE provision of satisfactory municipal and domestic water supplies constitutes one of the most important problems that is presented to our cities and towns. The municipalities that are situated within easy reach of upland country can as a rule obtain pure water from the uninhabited highland drainage areas. Those located in the flatter portions of the country must depend on the local rivers or on underground sources. With increase in population the rivers inevitably become so polluted that it is necessary to purify the water before it can be devoted to domestic use. Such conditions prevail in the prairie region along the Ohio Valley and especially in the states of Ohio, Indiana and Illinois. Most of the larger cities in this region resort to purification of polluted river water. Cincinnati, Columbus, Indianapolis, Louisville and many smaller cities maintain filtration systems. For small cities and towns it is frequently possible to procure underground water supplies that will be sufficiently constant to warrant development. Some years ago the United States Geological Survey started investigations of ground-water supplies in the Ohio Valley. As a result two reports have already been published. The survey now announces the publication of a third, entitled "The Underground Waters of Southwestern Ohio," by M. L. Fuller, F. G. Clapp and R. B. Dole. The area covered by this report comprises about 5,600 square miles, or about one seventh of the state. The region receives abundant rainfall, but the streams are rather far apart and the springs are few and of small volume. This portion of Ohio is densely populated, the average population being about 150 to the square mile in the area as a whole and 50 in the rural districts, and as it contains many paper mills, distilleries and other manufacturing establishments the river waters are in

many places badly polluted by sewage and industrial wastes, which render them unfit for drinking. For this reason carefully protected ground-water supplies are highly desirable for domestic purposes, especially in the cities and crowded villages, where the nearness of houses, barns and cesspools may make wells unsafe sources of drinking water. In this portion of Ohio immense quantities of water are also required in the industries, and as the waters of the streams are generally too muddy and too uncertain in quantity for this purpose, wells are largely used, and the need of more specific information concerning ground-water supplies is urgent. Limestones predominate in this region, extending in some places to depths of hundreds of feet, and the lack of sandy water-bearing beds makes the ground-water problem especially difficult. Fortunately, however, the surface is covered with a sheet of unconsolidated pebbly clay, underlain locally by some sand and gravel, and nearly all the larger valleys are deeply filled with sand, gravel or unconsolidated glacial material. These deposits contain much underground water, largely of local origin. Many of the wells on low ground, both those in rock and those in the alluvial fillings of the valley, yield flowing water, and nearly everywhere the water is under artesian pressure, rising very materially when encountered. In general, deep wells give no promise in this region, for, though water can be obtained from such wells in most places, it will generally be either salty or highly charged with sulphur.

UNIVERSITY AND EDUCATIONAL NEWS

GIFTS aggregating more than \$1,000,000 to Washington and Lee University, Lexington, Va., are provided for in the will of Robert P. Doremus, member of a New York Stock Exchange firm, who died on February 1 last. Mr. Doremus was a graduate of Washington and Lee University.

AN increase of \$12,800 in the annual state appropriation for Middlebury College has been made by the legislature of Vermont.